

RODIN, A.V.

JPRS 59474
10 JULY 1973

THEORY OF STREAMER BREAKDOWN

[Article by A. I. Zolotarev, I. G. Pechenkin, V. D. Piskunov, A. V. Rodin, A. N. Stetsko, Zhurnal Prikladnoy Matematiki i Mekhaniki, No 1, 1973, signed to press 24 July 1972, pp 56-65]

The development of the successive theory of streamer breakdown of a gas requires examination of transport of the zone of ionization in the direction of uniform gas in an electric field, depending on the form of the streamer, which is governed, in turn, by the transport mechanisms [1-5]. In such form this problem is very complex, and the theory proceeds along the path of analysis of various qualitative streamer models [4].

It is assumed in [4] that the velocities of the streamers traveling toward the anode and cathode are determined by the drift rate of electrons. The mechanism of propagation of an anode-bound streamer is considered to be the development of an avalanche from the leading edge of a electrons traveling toward the anode. On the cathode side electrons are formed ahead of the front of the cathode-bound streamer because of transfer of emission from the ionized zone [1]. It is shown in [5] that direct photoionization is ineffective because of the short path of the quanta, and a mechanism of development of a cathode-bound streamer, related to associative ionization of excited atoms, is proposed. These atoms are formed by far-traveling resonance photons from the wings of the spectral line.

A linear relationship between the velocity of streamers and their length turned out to be a very interesting prediction of theory [4]. This dependence was confirmed in experiments on streamer breakdown, initiated at the center of the discharge gap in spark chambers [6, 7]. At the same time, the velocity of the "breakdown wave" for streamers, developed from avalanches initiated at one of the electrodes, remains constant with satisfactory accuracy in intervals of length of the order of 1 m.

A qualitative theory that permits computation of the velocity of an anode-bound streamer in the case when velocity does not depend on length, is formulated in this article. Since the diffusion coefficient of excited

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UDC 621.438-226.3-71.001.5

GINZBURGSKIY, L.L., PODCHUYEV, YU.S., and RODIN, K.G.

"The Effect of Cooling Air on Aerodynamic Characteristics of Turbine Nozzle Rings"

Tr. Leningr. Politekh. In-ta [Works of the Leningrad Polytechnic Institute], 1972, No 323, pp 51-54 (from Referativnyy Zhurnal, No 6, Jun 72. 49. Turbo-stroyeniye. Abstract No 6.49.124)

Translation: Gas turbines use only blades with cooling air outflow near the exit edge of the nozzle. The cooling air streams, outflowing from the orifices, affect the aerodynamic characteristics of the nozzle ring lattice. In order to investigate this effect, the Chair of Turbine Construction devised an experimental unit with a ring shaped lattice. A natural nozzle ring of a gas turbine was mounted on this unit. The flow velocity field behind the lattice was investigated according to the pitch and height of the blades when changing the relative flow rate of cooling air. The effect of the relative flow rate of cooling air on the efficiency of the turbine stage has to be defined later on more accurately by investigating the nozzle ring at real temperatures of gas and cooling air. Two illustr.

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ACARICIDE NATURE OF DICRESYL FOR CATTLE TICKS -U-
AUTHOR--(02)--PETROVSKIY, V.V., RODIN, S.D.
COUNTRY OF INFO--USSR
SOURCE--KHIM. SEL. KHOZ. 1970, 8(2), 118-19
DATE PUBLISHED--70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--ACARICIDE, TICK, CARBAMATE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--2000/1689 STEP NO--UR/0394/70/008/002/0118/0119
CIRC ACCESSION NO--AP0125310
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30UCT70

CIRC ACCESSION NO--AP0125310

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. DICRESYL (A MIXT. OF M AND

P-CRESYL N-METHYLCARBAMATES) WAS INEFFECTIVE ON CATTLE AGAINST TICKS

(HYALOMMA ANATOLICUM, H. DETRITUM, H. PLUMBEUM, RHIPICEPHALUS BURSA, AND

BOOPHILUS CALCARATUS).

FACILITY: VSES. INST. EKSP. VET., USSR.

UNCLASSIFIED

USSR

UDC 616.981.49-022.39:599.323.41-036.22

VORONETS, N. P., DEMCHENKO, D. K., RODINA, K. YA., and RODIN, S. G.

"A Breslau Epizootic Among Norway Rats and Breslau Salmonellosis Among Humans"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971, pp 145-146

Abstract: In the course of a minor outbreak of Breslau salmonellosis from 11 to 18 June 1969, a number of febrile persons with symptoms of gastro-enteritis were admitted to the authors' hospital at the rate of 1 or 2 a day for 1 week. A pigsty and adjacent structures located in the area where the patients lived was found to be overrun with sick Norway rats. Several measures to exterminate the rats were taken and 4 days later the infection disappeared among the local inhabitants, with no new cases reported. Cultures isolated from both sick people and surviving and dead rodents proved to be identical in cultural, biochemical, and serological characteristics.

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UDC 541.182.2/.3:616.21/.23-057]-084

~~RODIN, V. I.~~ Professor, and BOYENKO, S. K., Otorhinolaryngology Clinic,
Faculty of Advanced Training of Physicians, Donetsk Medical Institute imeni
A. M. Gor'kiy

"The Effect of Electric Welding Aerosol on the Upper Respiratory Tract, and
Preventive Measures"

Kiev, Zhurnal Ushnykh, Nosovykh i Gorlovykh Boleznay, No 5, Sep/Oct 70, pp
1-4

Abstract: Examination of the upper respiratory tract in 334 electric welders with experience ranging from 1 to over 20 years revealed signs of chronic inflammation in 64%, accompanied by allergic manifestations in one-half of the cases. Edema of the nasal and laryngeal mucosa was common. These workers complained of frequent head colds, itching in the throat, and recurrent hoarseness. Some 22% of those with 10 years' experience or more also exhibited symptoms of subatrophic rhinopharyngitis. Recommended preventive measures include substitution of automatic or semiautomatic welding for manual welding, elimination of toxic electrodes, and improved general and local ventilation or the wearing of masks with a fresh air
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RODIN, V. I., and BOYENKO, S. K., Zhurnal Ushnykh, Nosovykh i Gorlovykh
Bolezney, No 5, Sep/Oct 70, pp 1-4

supply. Workers with chronic inflammation of the upper respiratory tract generally improved significantly after 5 minutes' inhalation (20 times) of an aerosol consisting of sodium bicarbonate, sodium chloride, tincture of iodine, and distilled water (plus 1% ephedrine combined with 1% di-phenhydramine for those suffering from allergies).

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USSR

UDC 546.78:620.172.2

CHUBAROV, V. M., LEVINSKIY, YU. V., SALIBEKOV, S. YE., TREFILOV, A. F., GRACHEV, L. V., PODIN, YE. M., LEVINSKAYA, N. KH., DVOYCHENKOVA, L. V., Moscow

"Heat-Resistant Composition Material Based on Nickel"

Kiev, Problemy Prochnosti, No 7, 1971, pp 100-104

Abstract: Results are presented from development of the VKM-1 composition material constructed on the basis of the heat-resistant ZhS6-K nickel alloy reinforced with tungsten wire. Data are presented from metallographic and micro-radiographic studies of the compatibility of the matrix with the fiber indicating insignificant interaction of the ZhS6-K alloy with the tungsten even after holding for 100 hours at a temperature of 1,200° C.

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1/2 012 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--USE OF FLUORESCENT ANTIBODY TECHNIQUE FOR THE STUDY OF ANTIGENIC
PROPERTIES OF DNA IN SECONDARY ERYTHRODEMIA -U-
AUTHOR--RODIN, YU.A.
COUNTRY OF INFO--USSR *R*
SOURCE--VESTN DERMATOL VENEROL 44(1): 34-36. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FLUORESCENT ANTIBODY, DNA, NUCLEOTIDE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3009/0165 STEP NO--UR/0206/70/044/001/0034/0036
CIRC ACCESSION NO--AP0139028
UNCLASSIFIED

2/2 012

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0139028

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EXPERIMENTS WERE CARRIED OUT ON 17 PATIENTS SUFFERING FROM REPEATED ERYTHRODERMIAS. FLUORESCENT ANTIBODIES AGAINST THE PATIENTS OWN DNA WERE DISCOVERED IN THE SERUM OF 10 PATIENTS. THE TEST FOR "FAST CORPUSCLES" (BY VAN SOEREN) SHOWED TITERS RANGING FROM 32-1024 IN THESE PATIENTS. THE PASSIVE HEMAGGLUTINATION OF ERYTHROCYTES COVERED WITH DNA (20 MUG-ML SALINE) DID NOT COINCIDE WITH THE PREVIOUS RESULTS; IT WAS NEGATIVE IN 2 OF THESE 10 PATIENTS AND VERY LOW TITERS WERE FOUND IN 3 OF THEM. IT IS SUGGESTED THAT THIS WAS CAUSED BY BETTER REACTIVITY OF ANTINUCLEAR ANTIBODIES WITH NUCLEOTIDES OF HUMAN ORIGIN THAN WITH DNA OF ANIMAL ORIGIN, WHICH WAS USED IN THE PASSIVE HEMAGGLUTINATION. THE SUBCUTANEOUS LOCAL LYMPHADENITIS (ANTIBODY PRODUCTION) WAS OBSERVED IN ALL 10 PATIENTS WITH POSITIVE TESTS AND THE HYPERGAMMAGLOBULINEMIA WAS OBSERVED IN 7 OF THEM. FACILITY: DEP. SKIN DIS., KIEV MED. INST., KIEV, USSR.

UNCLASSIFIED

Veterinary Medicine

USSR

UDC 619:616.988.73-036.2:636.5

SYURIN, V. N., OSIDZE, N. G., CHISTOVA, Z. Ya., and RODIN, Yu. V., Moscow
Veterinary Academy

"The Epizootiological Potential of Fowl Influenza Virus"

Moscow, Veterinariya, No 8, Aug 72, pp 41-43

Many reports have appeared in recent years on the isolation of antigenically different variants of fowl influenza viruses, both pathogenic and weakly pathogenic, and not only from chickens but from ducks, turkeys, geese, quail, pheasants, seagulls and other species. At the same time it was reported that a large number of isolated influenza strains varied not only with respect to antigenic properties, but also with respect to pathogenicity for birds of various ages.

Bakos and Dinter in 1949 were the first to report the presence of fowl influenza virus with antigenic variants in such strains. They succeeded in isolating in Bavaria an antigenic variant of chicken influenza virus (strain N) which possessed a strong pathogenicity for chicks but was apathogenic for adult fowl. Ten years later a similar (chick) strain of influenza virus was isolated in Scotland and was called, in accordance with international classification, A/chicken/Scotland/59.

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In the Soviet Union an analogous strain was isolated in 1967 at one of the poultry farms during an outbreak which was characterized by a rapid course, infection of the respiratory organs and of the gastrointestinal tract and a high degree of fatality. The isolated strain was thoroughly studied and designated by us according to the nomenclature of the VOZ at that time as influenza virus type A -- A/chicken/USSR/314/67.

In the 1966-1970 period in a number of countries a number of influenza virus strains were found which differed from each other by a large number of indexes (A. L. Kornilova, 1960; Ye. M. Kozhevnikov, A. A. Bobrov, 1961; N. G. Osidze, V. N. Syurin, 1970; P. F. Tsimokh, 1966; Dinter, 1964; Frano et al., 1958). It became necessary to reclassify all of the isolated fowl strains.

The following classification of fowl influenza etiologic agents was proposed by the Council on the Classification of Influenza Viruses of the VOZ in 1971 (Table).
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Classification of Fowl Influenza Etiologic Agents	
<u>Provisional Designation of Serotypes</u>	<u>Standard Strain*</u>
A1	A/KehP/Dar/27
A2	A/chicken/Germany/49
A3	A/duck/England/56
A4	A/duck/Czechoslovakia/56
A5	A/Currassow/South Africa/61
A6	A/turkey/Massachusetts/65
A7	A/duck/Ukraine/1/63
A8	A/turkey/Ontario/6118/68

*Notation. The fowl influenza virus strain A/chicken/USSR/314/67 which we isolated in 1967 belongs to the serotype A5, the strain A/chicken/USSR/315/70, isolated in 1970 -- to the serotype A6. During an epizootic of fowl influenza in 1970-1972, 13 strains were isolated belonged to serotype A6 with strain A/chicken/USSR/315/70

This classification can hardly be considered complete. However, in the practical (diagnostic) sense, by using this table and having the diagnostic

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tools prepared from the standard strains it becomes easier to make one's way through the chaos of isolated virus strains that are growing in number with each year. Changes in the antigenic structure of fowl influenza virus strains under natural conditions occur continually, frequently in the absence of concrete antigenic differences, so that the classification of fowl influenza viruses into types that are different from influenza viruses shared by men and horses, is impossible.

Clinically, fowl influenza can appear in various forms. Classical fowl plague, whose etiologic agent is also related to influenza virus, is characterized by a short incubation period, elevated temperature, depression, cessation of ovulation, infection of respiratory organs and of the gastrointestinal tract, diarrhea, acute cyanosis of the comb and lobes, and a high fatality rate within 24-40 hours. The death rate in these cases reaches 80-100%. And in very acute cases it is not always possible to record the enumerated symptoms of the disease. At the present time recordings are being made of enzootic outbreaks of diseases whose etiologic agents are related to fowl influenza virus but which are less severe. Symptoms are limited to depression, reduced egg yield, infection of the respiratory or gastrointestinal tract (diarrhea) with subsequent recovery

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in two to three weeks (Lang et al., 1965; McQueen et al., 1968, Rogerts, 1964). Death of infected fowl may not exceed 5-10%. Upon section of the killed sick bird one finds catarrhal infections of the mucous membranes of the respiratory pathways, catarrhal-hemorrhagic enteritis and nephritis. Influenza virus in similar cases can be comparatively easily isolated from many sick birds at the site of infection. However, in this case there is the difficulty of precisely reproducing experimental infections that are identical to the natural picture of the disease. Similar situations have been reported by many investigators. Thus, Roberts (1964) could not reproduce duck influenza with the strain A/duck/England/62, and proposed that in addition to the virus, specific stress factors are essential for the development of infection. In the experimental infection of turkeys by the strain A/turkey/Wisconsin/66, supercooling of the bird was an obligatory condition for reproducing the disease. In addition, success of an experimental reproduction of the disease often depends on the bird's age.

In 1970 at some poultry farms in Moscow Oblast, enzootic outbreaks of fowl disease were recorded almost simultaneously in populations immune to pseudo-pest. Outbreaks were highly contagious. The illness primarily affected
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egg-laying hens, and there were outbreaks of the disease among young hens also. Sick fowl were depressed, refused to eat; the egg yield was reduced and diarrhea was the primary clinical symptom. Although the death rate among infected fowl did not exceed 2-5%, forced slaughter of infected fowl reached 30%. The clinical course of the disease was from 12-20 days. Changes noted in dead and sacrificed fowl were in the form of catarrhal-hemorrhagic enteritis, ovaritis, and nephritis. In the majority of cases the bird recovered after two to three weeks of illness and its productivity was restored.

Fowl at one of the farms where the pathogen and its corresponding antibody were isolated were examined. The outbreak initially occurred among 180-day old chickens vaccinated against pseudopest with the La Sota and B1 vaccines. After 10 days it spread to several young fowl. Pseudopest as well as bacterial infections and intoxications were excluded. Section of the dead and sacrificed fowl in the agony state disclosed catarrhal-hemorrhagic enteritis, ovaritis, and nephritis.

Hemagglutinating agents were isolated from the brain, internal organs and intestine of fowl on the third day of the disease. In subsequent studies, 6/11

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all of the isolated material was identical. Virus was isolated by infecting chick embryos in the allantoic cavity and in the chorio allantois membrane as well as in chick embryo kidney tissue. Hemagglutinating activity with respect to chick erythrocytes in titers of 1:8-1:64 was found on the first passage.

The virus multiplied during the first five passages, causing death and hemorrhagic diathesis. Its pathogenicity for the embryos decreased with an increase in the number of passages, and the number of dead fowl with clear symptoms of hemorrhagic diathesis began to fall. However, the hemagglutinating activity of the virus increased by the eighth passage (titer 1:512-1:1024). The isolated strain agglutinated arithrocytes of sheep and horses also.

The strain was examined in the hemagglutination reaction with specific sera against pseudopest, classical fowl plague and various fowl influenza strains, and human influenza virus. The isolated strain was antigenically different from the fowl influenza virus variant. In a complement fixation reaction with a rat type antiserum against human influenza type A, the strain showed a clear relationship in its S antigen to the human type A influenza virus, and

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in the neutralization and hemagglutination inhibition reaction, it resembled American turkey influenza strain A/turkey/Wisconsin/66. This strain was provisionally designated A/chicken/USSR/315/70.

Subsequently, the isolated strain was studied for pathogenic and antigenic properties. For the purpose of experimentally reproducing the infection, 19 180-day old chickens were infected with this strain by various methods: feeding a virus-containing suspension of the internal organs of sick fowl; administration of a viral suspension from the second passage intratracheally, intramuscularly, intrabursally and orally. Healthy fowl were placed with each infected group of birds for the purpose of infection. No precise clinical manifestations of the disease were noted. The experimental group was killed after 15 days. Antihemagglutinins against the homologous strain A/315/70 in titers of 1:10-1:320 were found in the blood serum of infected fowl as well as in those infected by contact. Section of 12 birds showed catarrhal-hemorrhagic enteritis and nephritis in 10 birds.

In order to study the immunobiological relationship between strain A/315/70 and the etiologic agent of Newcastle disease (strain T) and classical fowl

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plague (strain P₅), four 21-day old chicks, immunized against Newcastle disease, were infected with strain A/315/70 in a dose of 10⁶ EID₅₀/0.2 intramuscularly and were placed next to two birds for contact. Four more fowl were infected with a highly virulent Newcastle disease virus (strain T). All of them became ill in three days and perished with the pathoanatomical changes characteristic of this infection.

No clinical signs of the disease were noted in birds infected by the virus A/chicken/USSR/315/70. The birds were killed after 17 days. Upon sectioning, catarrhal-hemorrhagic enteritis was found in two of the infected birds and one in which infection was caused by contact. The antibody titers against the virus A/315/70 in infected fowl and those infected by contact ranged within the limits 1:40-1:160. A virus identical to strain A/315/70 was reisolated from two of the killed birds (infected and contact) with the most acute catarrhal-hemorrhagic enteritis. At the same time 49-day-old birds, vaccinated against Newcastle disease aged 20 and 33 days, and having an antibody titer (hemagglutination inhibition reaction) against Newcastle disease virus within the range of 1:40 to 1:320, were infected with virus A/315/70 or Newcastle disease virus and injected with a vaccine of strain P₅ of classical 9/11

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plague virus, and then also infected with virus A/315/70 intratracheally in the same dose. A slight depression was noted from the second to fifth day in fowl infected only with A/315/70 virus. After 14 days one of them perished with enteritis symptoms: A virus was isolated from its organs that was identical to strain A/315/70, and the antibody titers in the remaining birds against strain A/315/70 were 1:160-1:640. Characteristic pathological-anatomical changes were noted in one chick. A virus identical to A/315/70 was re-isolated from two vaccinated birds by strain P₅ (antibody titers 1:80-1:320) and infected by virus A/315/70 after 10 days.

An antigenic and immunobiological connection between the isolated strain of fowl influenza A/315/70, Newcastle disease virus and the virus of classical fowl plague was not demonstrated. The isolated virus turned out to be a new antigenic variant of fowl influenza.

An epizootic potential is indicated for fowl influenza viruses, which are little known to practicing physicians and scientific associates.
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SYURIN, V. N., et al., Veterinariya, No 8, Aug 72, pp 41-43

Abstract: The article cites a modern classification of the pathogens of fowl strain A/chicken/USSR/315/70, which turned out to be a new antigenic variant of fowl influenza virus. No antigenic or immuniobiological connection was found between the isolated strain, Newcastle disease virus and the virus of classical fowl plague. The data indicate the epizootiological potential of fowl influenza virus.

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Aluminum and Its Alloys

USSR

UDC 669.71.620.18

VAYNBLAT, YU. M., and RODINA, I. B., All-Union Institute of Light Alloys

"Structure of D16 Aluminum Alloy at the Steady-State Stage of Hot Deformation"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 35, No 4, 1973, pp 838-840

Abstract: Hot deformation of D16 aluminum alloy (4.35% Cu, 1.3% Mg, and 0.63% Mn) was conducted with an average strain rate of 0.02 sec^{-1} for two types of initial structures -- recrystallized (25-micron grain size) and polygonized as a result of previous hot pressing (3-micron grain size). At room temperature there is a continuous increase of flow stresses, while for the recrystallized sample the stress is lower than for the polygonized sample. At 300-400°C, flow stress starts at a higher temperature for the recrystallized sample, and the steady-state stage the initial structure has no effect. It was noted that the flow stresses during hot deformation were equal and constant regardless of initial structure. The possible reason for this equality is an independence from structural dispersion characteristics. Apparently, samples deformed to the steady-state stage are less different in structure than they were initially and can have the same yield strength over a wide temperature interval. 3 figures, 5 bibliographical references.

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USSR

UDC: 616.831-073.97

ORLOV, Ye. F., BARANOVA, I. A., RAKOV, I. S., and RODINA, I. V.,
Scientific Research Radiophysics Institute, Gor'kiy

"A Method of Investigating the Spatial Dependence of the Spectral
Components of Electroencephalograms"

Moscow, Meditsinskaya tekhnika, No 1, 1973, pp 10-13

Abstract: Since the problem of parallel spectral analysis of electroencephalograms (EEG) for a large number of channels with measurement of phase differences in individual spectral components after narrow-band filtration is an interesting one, this paper proposes a device for solving the problem. Optical analog systems of this type have the advantage of operational speed in addition to multichannel application, and are thus especially useful for EEG analysis. In the final stage of this equipment, a schematic of which is shown, the results of the multichannel Fourier analysis is shown on the screen of a television kinescope with frequency measured along the x axis and the channel number along the y. The equipment is explained, and the mathematical analysis for a single channel given. A sample of eight-channel EEG spectra obtained with the device is shown.

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UDC 616.981.49-022.39:599.323.41-036.22

VORONETS, N. P., DEMCHENKO, D. K., RODINA, K. YA., and RODIN, S. G.

"A Breslau Epizootic Among Norway Rats and Breslau Salmonellosis Among Humans"
Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 3, 1971,
pp 145-146

Abstract: In the course of a minor outbreak of Breslau salmonellosis from 11 to 18 June 1969, a number of febrile persons with symptoms of gastro-enteritis were admitted to the authors' hospital at the rate of 1 or 2 a day for 1 week. A pigsty and adjacent structures located in the area where the patients lived was found to be overrun with sick Norway rats. Several measures to exterminate the rats were taken and 4 days later the infection disappeared among the local inhabitants, with no new cases reported. Cultures isolated from both sick people and surviving and dead rodents proved to be identical in cultural, biochemical, and serological characteristics.

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172 027
UNCLASSIFIED
TITLE--CHANGES IN CARBOHYDRATE, PROTEIN, AND MINERAL METABOLISM DURING
TRAUMATIC SHOCK IN YOUNG ANIMALS -U-
AUTHOR--RODINA, L.I. *R*
COUNTRY OF INFO--USSR
SOURCE--ZDRAVOOKHR. BELORUSS. 1970, 16(2), 52-4
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--TRAUMATIC SHOCK, CARBOHYDRATE METABOLISM, PROTEIN METABOLISM,
BLOOD CHEMISTRY, CURTICOID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1998/0102
STEP NO--UR/0447/70/016/002/0052/0054
CIRC ACCESSION NO--AP0120802
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120802

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TRAUMATIC SHOCK WAS PRODUCED BY CANNON'S METHOD TO CAUSE A 50PERCENT DECREASE IN ARTERIAL PRESSURE; IF COMBINED WITH BLOOD LOSS, ARTERIAL PRESSURE DROPPED TO 50 MM. IN ADULT DOGS TRAUMA INCREASED GLYCEMIA AND NA, DECREASED BLOOD PROTEIN, ALBUMIN, GLOBULIN, AND K. ADDNL. HEMORRHAGE INTENSIFIED HYPERGLYCEMIA AND CAUSED AN INCREASE OF K AND A DROP OF NA DUE TO ADRENAL DEFICIENCY. IN PUPPIES (3-6 MONTHS) WHICH WERE LESS SUSCEPTIBLE TO SHOCK HYPOTENSION AND HYPOXIA, POSTTRAUMATIC HYPERGLYCEMIA WAS MORE MARKED, BLOOD LACTIC ACID INCREASED, AND PLASMA PROTEIN DROPPED FROM 7 TO 4PERCENT. K, CA, AND NA LEVELS REMAINED UNCHANGED EXCEPT FOR A SLIGHT INCREASE OF NA AT THE END OF THE 3RD HR. STIMULATION OF MINERALOCORTICOID ACTIVITY WAS ASSUMED. BLOOD LOSS INTENSIFIED THE SYMPTOMS, GLYCEMIA INCREASING TO 329 MG PERCENT, LACTIC ACID TO 33.5 MG PERCENT; BOTH K AND NA INCREASED, CA DECREASED.

FACILITY: VITEBSK. MED. INST., VITEBSK, USSR.

UNCLASSIFIED

USSR

UDC 621.385.632 (088.8)

GRISHIN, B.S., ~~RODINA, M.I.~~, TYURDEYEV, YU. S.

"Traveling-Wave Tube"

USSR Author's Certificate No 245927, filed 6 Oct 67, published 15 May 70 (from RZh--Elektronika i yeye primeneniya, No 2, February 1971, Abstract No 2A203P)

Translation: A traveling-wave tube is proposed with a spiral delay line and additional sections of the spiral with a decreased pitch, located along the length of the TWT against both sides of the spiral delay line behind the energy inputs. With the object of averting radiation from the ends of the delay line and an increase of the stability of operation of the TWT, periodically-located metal connections which mutually lock the neighboring loops of the spiral are installed in the additional sections of the spiral.

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USSR

UDC 612.119(99)

TASHPULATOV, R. Yu., ~~RODINA, R. I.~~ IONIN, A. I., and PONOMAREVA, N. G.,
Institute of Epidemiology and Microbiology imeni Gamaleya, Central Institute
of Hematology and Blood Transfusion, and Arctic and Antarctic Scientific
Research Institute

"Microbiological and Immunological Studies of the Human Body in the
Antarctic. III. Dynamics of Hematopoiesis in Polar Explorers During an
Expedition"

Moscow, Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971,
pp 81-83

Abstract: The dynamics of the hemoglobin concentration, RBC and WBC counts,
color index, and leukocyte formula was studied in 14 Antarctic explorers in
relation to the time of year. The hemoglobin concentration was found to be
directly related to solar activity. It decreased during the polar night
when solar activity was low but increased to the normal value during the
summer when solar activity was high. The RBC count fluctuated within
narrow limits. The leukocyte count tended to decrease during the year.
The color index curve virtually duplicated that of the hemoglobin concen-
tration. The leukocyte formula shifted slightly to the left at first, i.e.,
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TASHPUJATOV, R. Yu., et al., Zhurnal Mikrobiologii, Epidemiologii i Immunobiologii, No 9, 1971, pp 81-83

the stabs increased while the segs, eosinophils, and lymphocytes remained unchanged and the monocytes decreased. During the latter part of the winter the number of stabs returned to the original level while the segs decreased and the eosinophils and lymphocytes increased. The relative and absolute lymphocytosis and moderate neutropenia persisted until the end of winter.

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UDC 669.01

RAKHSHTADT, A.G., Professor D-r of Techn. Sciences. ROD'KINA, T.A., Aspirant
(Moscow Higher Technical School imeni N.E. Bauman)

"Effect of Surface Processing on Elastic Properties of 35KhGSA Steel"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 6,
1970, pp 143-148

Abstract: The effect of surface processing, such as electrolytic polishing, galvanic coating, corrosion and chemical etching on elastic properties of 35KhGSA steel was evaluated by measuring the resistance to microplastic deformations on which depend such properties of imperfect elasticity as hysteresis and elastic effect, which determine the quality of an elastic element. The preparation of samples and experimental techniques are described. The results presented in graphical form show that electrolytic polishing or chemical etching of steel after heat treatment and mechanical removal of a 10- to 20-micron layer, significantly increases the resistance to microplastic deformations (elastic strength). Cadmium coating on heat treated steel after mechanical processing reduces the resistance to microplastic deformations. The corrosion process in a 3% NaCl solution increases the elastic strength through the removal of surface layer with increased density of substructure defects, while the corrosion of samples after cadmium plating

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RAKHSHTADT, A.G., et al, Izvestiya Vysshikh Uchebnykh Zavedeniy, Mashinostroyeniye, No 6, 1970, pp 143-148

reduces the elastic strength. It was established that cadmium plating does not provide an efficient protection for 35KhGSA steel against corrosion in a 3% NaCl solution, since tests conducted in this solution disclose a strong reduction in resistance to microplastic deformations.

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1/2 013

UNCLASSIFIED

PROCESSING DATE--23OCT70

TITLE--EXTRACTION OF THALLIUM (III) FROM SULFURIC ACID SOLUTIONS BY BIS
(2,ETHYLHEXYL) HYDROGEN PHOSPHATE -U-
AUTHOR-(03)-LEVIN, I.S., RODINA, T.F., VORSINA, I.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. NEORG. KHIM. 1970, 15(2), 496-501

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--THALLIUM, SULFURIC ACID, METAL CHEMICAL ANALYSIS, PHOSPHATE,
HYDROGEN COMPOUND, SOLVENT EXTRACTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1952

STEP NO--UR/0078/70/015/002/0496/0501

CIRC ACCESSION NO--AP0118914

UNCLASSIFIED

2/2 013

CIRC ACCESSION NO--AP0118914

UNCLASSIFIED

PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. COMPN. OF TL(III) COMPLEXES OF
BIS(2,ETHYLHEXYL) H PHOSPHATE (HR), WHICH FORM DURING AN EXTN. OF
TL(III) FROM H SUB2 SO SUB4 SOLNS., DEPENDS NOT ONLY ON THE NATURE OF
EXTG. SOLVENT BUT ALSO ON H SUB2 SO SUB4 CONC. EQUIL. CONSTS. FOR
TL(III) HR COMPLEX EXTN. BY ORG. SOLVENTS OCTANE, HEPTANE, CYCLOHEXANE,
C SUB6 H SUB6, MEPH, ME SUB2 C SUB6 H SUB4, CHCL SUB3, AND CCL SUB4, AT
PH 0.5-3.0 ARE GIVEN.

UNCLASSIFIED

1/2 022

UNCLASSIFIED

PROCESSING DATE--23OCT70
ELECTRIC FIELD -U-

TITLE--ON SOME PROPERTIES OF CDSNP SUB2 IN STRONG

AUTHOR--(05)-GORYUNOVA, N.A., LEONOV, E.I., ORLOV, V.M., RODIONOV, A.F.,
SOKOLOVA, V.I.

COUNTRY OF INFO--USSR

SOURCE--PHYS. LETTERS, NETHERLANDS, VOL. 3 1A, NO. 7, P. 393-4, 16 APRIL
1970

DATE PUBLISHED-----7Q

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PHOSPHIDE, CADMIUM COMPOUND, TIN COMPOUND, HIGH FREQUENCY
CURRENT, OSCILLATION, ELECTRIC FIELD

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1992/0441

STEP NO--NE/0000/70/031/007/0393/0394

CIRC ACCESSION NO--AP0111634

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0111634

ABSTRACT/EXTRACT--(U) GP-C-

ABSTRACT. HIGH FREQUENCY CURRENT
OSCILLATIONS IN A NEW TERNARY SEMICONDUCTING COMPOUND HAVE BEEN

PREDICTED THEORETICALLY AND OBSERVED EXPERIMENTALLY.

FACILITY:

ACADEMY SCI. USSR, LENINGRAD.

UNCLASSIFIED

USSR

RODIONOV, Aleksey

"And Still the Brain is a Puzzle..."

Tbilisi, Zarya Vostoka, 31 Mar 73, p 2

Translation: The theory of functional systems that was worked out by Academician Petr Kuz'mich Anokhin not only continues the teachings of the great physiologist Ivan Petrovich Pavlov on conditioned reflexes, but applies the basic assumptions of cybernetics to the analysis of animal behavior and shows how plans for future actions are formulated, how the results of activity are assessed, and how the very complex forms of the behavior of animals and man are regulated. The doctrine of functional systems opens up new paths for the mathematical solution of the complex mechanisms of nervous activity.

"And still the brain is a puzzle..." I did not expect to hear this phrase from Academician Petr Anokhin. The scientist has devoted over 50 years to a study of the biology and neurophysiology of the conditioned reflex and to processes that take place in the central headquarters of the organism's entire vital activity. Relying on the profound theoretical concepts of the great Russian physiologists Sechenov and Pavlov and on the experience of world physiology, Anokhin set up and brilliantly executed hundreds of experiments.

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RODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

So for what purpose had he used the frightening word "puzzle"? What is it -- a retreat, recognition of the impossibility of learning the secret of the brain, or does this word hold man's desire to reach a fundamental principle, the very fine processes from which, as from the stones in a mosaic, an integral picture can be constructed?

In order to understand Petr Anokhin's words, perhaps we should return together with the scientist to the first steps of the physiologist-to-be that determined his scientific and life principles.

In 1921, as Anokhin notes, his life "abruptly swerved to the side." A student at the Novocherkassk Geodetic-Agronomic Academy, a participant in the Civil War, a partisan, a military cartographer, editor of the newspaper Krasnyy Don, he met Anatoliy Lunacharskiy, the first people's commissar of education of the young Soviet republic. Lunacharskiy had been interested in who was writing such sharp and daring advanced commentary in the newspaper. The editor confessed that it was his work. The people's commissar advised the young man to study and asked him what he would like to do.

"It would be a long undertaking," recalls Anokhin, "to say why I replied that I dreamed of devoting myself to a study of the brain. I had always been attracted to the natural sciences..."

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RODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

The answer interested Lunacharskiy -- he promised to help. Soon Anokhin became a medical student and then he moved to the laboratory of the celebrated physiologist I. P. Pavlov.

Anokhin became completely involved in the problem of conditioned reflexes. At that time his scientific orientation distinctly assumed the features of the classical doctrine of relations between inborn and acquired instincts. Even had Anokhin advanced solely within the framework of projects that directly occupied Pavlov, he would indisputably have done much. But he took the risk of digressing, or more accurately of advancing. As early as 1916 Pavlov expressed the idea that animals had a "reflex of purpose." It was precisely this problem that Anokhin began to study as one of the working hypotheses. It turned out that the brain, through its reflexive activity, does not simply guide us step by step to the execution of what we have thought out, but first models the result that will be obtained in the future and -- most importantly -- continually compares and contrasts the desire with the result.

In the 1930's Anokhin's assumption generated many arguments. Pavlov requested that experimental proof be sent to him. By that time Petr Anokhin was already working in Nizhniy Novgorod, where he was in charge of the chair of physiology in the local university. The experiment that he had set up for

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KODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

the purpose of proving his theoretical assumption was tight-knit, strict, and phenomenal in its results.

A dog was taught to approach a feeding trough on the ring of a bell and to take a piece of bread (Pavlov's classic experiment). This behavioral "model" was firmly programmed in the animal's brain. But then a piece of meat -- a biologically stronger stimulus -- was placed in the same trough. In response to the bell the dog approached the trough but rejected the meat! It needed time to develop a new "model," a new program of action.

Wherein lies the cause of this behavior in the dog, what determines the logic of the actions of animals in such "surprise situations"? After all, can man also apply to his own actions a similar need for a new model? The explanations required diverse and in-depth theoretical and practical research on the biology and neurophysiology of the conditioned reflex.

Anokhin emphasizes that the brain is not simply 14 billion nerve cells: this figure, colossal in itself, does not characterize all of the brain's possibilities. Every cell has an average of 7,000 contacts with other neurons plus states of different excitability. Only after pondering the operation of the entire immense supersensitive mechanism is a researcher capable of imagining the stunning result: a record of the possible reactions of the brain would require a tape 9.5 million km long. This is the tremendous "number of

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RODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

states," as physiologists say, or, after another terminology current with them, "degrees of freedom" that our brains hold!

"As you understand," emphasizes Anokhin, "no superpowerful or high-speed cybernetic machine could compare with the true potential of the human brain."

We will not, however, reject out of hand some similarity, some comparability of the activity of the brain and that of a cybernetic machine. Again we return to the problem of the "reflex" of purpose.

As early as 1935, 12 years before Norbert Wiener laid the foundation for cybernetics, Anokhin worked out and substantiated the theory of functional systems. Each of these systems arises solely for a specific purpose (taking a book, drinking water, turning on a light, and so on), characterized by the interaction of various nerve and muscle cells.

Thus, the modeling of the results of an action in the brain and, more importantly, the "feedback" that indicates the fulfillment of a task is the major discovery of modern physiology. Sitting in the scientist's office at the Institute imeni Sechenov in Moscow, Norbert Wiener talked with gratitude about the fact that Anokhin had significantly predated him with a cybernetic model in a "living version" ("physiological cybernetics"). The Soviet physiologist Petr Anokhin is considered the father of this field of Cybernetics.

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RODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

Thus, the most important property of functional systems is the fusion of the predicted with the performed. If the result is not satisfactory, if there is a disagreement, the formulation of a new, more appropriate system begins. In short, self-regulating functional systems are continually formed. In our day this brilliantly confirmed discovery by the Soviet scientist has become the cornerstone of physiology.

In 1972 Academician Petr Kuz'mich Anokhin, head of a chair of the First Moscow Medical Institute imeni Sechenov, was awarded the Lenin Prize for many years of work in this direction that has been summed up in the basic scientific work *Biologiya i Neyrofiziologiya Uslovnogo Refleksa* (The Biology and Neurophysiology of the Conditioned Reflex), with a volume of over 50 printed pages: Well then, how are we to deal with the phrase to the effect that the brain is still a puzzle? Perhaps before explaining the academician's idea it would be appropriate to digress somewhat from purely scientific problems.

At the age of 60 Anokhin learned English. He was to give lectures in Anglo-Saxon countries, it was extremely important for him to present the new concept himself, and the academician decided to speak English! This is but one stroke. But an image takes shape from such strokes. When a person has already lived three-fourths of a century would it not be simpler to live on one's previous scientific achievements or, in any case, not to get

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RODIONOV, Aleksey, Zarya Vostoka, 31 Mar 73, p 2

one's cuffs into the unknown? "It is an exceedingly difficult thing to reject an established point of view, especially if it holds something of your own," says Anokhin, explaining his principles. "Unfortunately, in science there are frequent cases in which the life of the author of an idea that is new for a while galvanizes an idea.

"I believe in the hour," says the academician, concluding his thought, "when no one will say that the brain has not been unraveled! Then new tasks will arise for the scientists of the future.... We may envy those who will solve them. Especially if they remember us with a kind word for the fact that we found in ourselves the courage not to stand still."

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USSR

UDC: 621.528:621.59

6
GORIN, V. P., SHUMSKIY, K. P., LEONOV, V. V., IVANOV, A. Ye., ZAKHAROV, V. S., SIVUSHCHKOV, B. P., KUPRIYANOV, V. I., RODIONOV, A. Kh., BARANOV, V. S., SHTRAKHMAN, A. Ya.

"A Cold Trap"

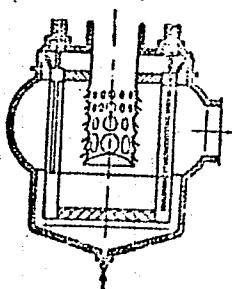
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332253, Division F, filed 9 Jan 69, published 14 Mar 72, pp 136-137

Translation: This Author's Certificate introduces a cold trap for vacuum pumps. The device contains a thermally insulated housing with fittings for connecting it to the exhausting vacuum pump and to the space being evacuated. Located in the housing are optically opaque cryogenic panels cooled by a liquid coolant such as nitrogen. As a distinguishing feature of the patent, the effectiveness of the trap is improved by making the cooled panels in the form of a vertical annular louvred screen with cooling tubes on the faces and collectors for the upper and lower shields located in the cavities of the louvred screen. The screen and shields taken together form a closed nonhermetic chamber which accommodates a dis-

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IN, V. P. et al., USSR Author's Certificate No 332253

distributor pipe coaxial with the annular screen and passing through the upper shield. The lower end of the distributor pipe is closed off, and holes are made in the side wall which have a diameter increasing downward along the flow of the gas-vapor mixture. The flow channels between the louvres in the vertical screen increase in cross sectional area toward the periphery, and the upper and lower shields are made with a greater hydraulic drag than the vertical screen.



2/2

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USSR

UDC: 550.837.73

~~RODIONOV, A. N.~~, SEMENOV, V. D.

"A Geoelectric Prospecting Method"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 28,
1970, Class 21, filed 27 Feb 68, p 79

Abstract: This Author's Certificate introduces a geoelectric prospecting method based on the study of a rotating electromagnetic field produced by ungrounded circuits, where the current in this field varies in magnitude and in direction. As a distinguishing feature of the patent, the spatial position of electrically conducting objects is determined by measuring the components of the electromagnetic field for each value of the magnitude and direction of the currents in the circuits. Curves are then plotted which are used to determine the presence and spatial location of the objects being sought.

1/1

RODIO, NOV, A.Y.

5785 59208
6-73

X-12a. AUTOALLOWING IN THE PROCESS OF EPITAXIAL GROWTH OF SILICON ON SUBSTRATES WITH A HIDDEN LAYER ALLOYED WITH ARSENIC

(Article by A. V. Bolshakov, A. I. Sidorenko, B. I. Tsvetkov, Moscow: Khar'kovskiy gos. univ., 12-17 June 1972, p. 180)

This paper was devoted to a study of autoallowing in the process of epitaxial growth of silicon on substrates with a hidden layer alloyed with arsenic.

It is demonstrated that the transport of arsenic from the hidden layer introduces a significant contribution into the level of allowing the epitaxial layer (in 10^{16} atoms/cm³). The transport of the admixture takes place most intensely in the direction of flow of the vapor-gas mixture.

Results are presented from a study of the distribution of the specific resistance with respect to the surface of the epitaxial layer grown on plates located in direct proximity to the plate with a continuous diffusion layer of the n-type alloyed with arsenic.

The possible mechanism of autoallowing of the epitaxial layer is discussed. Means of limiting transport of the admixture in the technological process with epitaxial growth of silicon are proposed.

RODIONOV, A. V.

SPR 57208

6-73

2.

2-12b. TRANSPORT OF ADMIXTURES IN THE PROCESS OF EPITAXIAL GROWTH OF SILICON
[Article by A. V. Poddanov, G. A. Perzhogin, Moscow: Novosibirsk, Ili Simoz-
zina, No Professorate, Price 1 fifteen Poluprovodnikov Khimicheskoye i Plemk, Rus-
sian, 12-17 June 1972, p. 14]

In the case of epitaxial growth of silicon on substrates with p -type conductivity (10^{15} atoms/cm³) with local diffusion regions of arsenic, antimony, or boron, the epitaxial layers of silicon above the high-resistance regions are observed.

By using radioactive isotopes a study was made of the redistribution of arsenic from the diffusion region in the process of high-temperature annealing in epitaxial growth.

The sintering process includes two steps. During annealing in hydrogen the ceramic is volatilized from the face of the substrate and introduced into the pedestal. In the case of epitaxial growth of intrinsic silicon atoms crisscross over from the charged pedestal to the anneal layer.

Beginning with this model, the autocatalytic phenomena explain certain known facts of autocatalysis of epoxidized silicon films.

1/6 068
TITLE--IN THE EARTH'S OBJECTIVE -U- UNCLASSIFIED
AUTHOR--RODIGNOV, B. 139 R
COUNTRY OF INFO--USSR
SOURCE--MOSCOW, IZVESTIYA, 12 JUNE 1970, P 2
DATE PUBLISHED--12JUN70
PROCESSING DATE--13NOV70
SUBJECT AREAS--METHODS AND EQUIPMENT, SPACE TECHNOLOGY, EARTH SCIENCES AND
OCEANOGRAPHY
TOPIC TAGS--SPACEBORNE EARTH PHOTOGRAPHY, AERIAL PHOTOGRAPHY, IR
PHOTOGRAPHY, MANNED SPACECRAFT, GEOLOGY, GEODESY, GEOGRAPHY,
CARTOGRAPHY, AGRICULTURE/(U)SOYUZ 9 MANNED SPACECRAFT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3004/1656
STEP NO--UR/9003/70/000/000/0002/0002
CIRC ACCESSION NO--AN0131966
UNCLASSIFIED

2/6 068

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0131966

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WHAT IS THE CONTRIBUTION OF SPACE RESEARCH TO A KNOWLEDGE OF OUR PLANET? PROFESSOR B. RODIGNOV DISCUSSES THIS MATTER. FIRST IT IS NECESSARY TO EMPHASIZE THAT THE LAUNCHING OF AUTOMATIC AND MANNED STATIONS INTO SPACE AFFORDED GEOLOGISTS, GEOGRAPHERS, GEODESISTS AND OTHER SPECIALISTS ENGAGED IN THE STUDY OF OUR PLANET WHAT PREVIOUSLY WERE INCONCEIVABLE POSSIBILITIES FOR A GLOBAL REVIEW OF THE EARTH'S SURFACE. THIS BREADTH OF VIEW PROVIDES WHAT IS QUALITATIVELY NEW INFORMATION. IT ALLOWS ONE TO SEE THE GENERALIZED FEATURES ON THE FACE OF OUR PLANET WHICH SIMPLY CANNOT BE DETECTED DIRECTLY FROM THE EARTH OR EVEN FROM AN AIRCRAFT. RECALL WHAT WAS STATED BY THE POET: FACT TO FACE WE CANNOT SEE, ONE SEES MORE AT A DISTANCE. GENERALIZED PERCEPTION FROM SPACE OF THE MOST IMPORTANT CHARACTERISTICS OF THE EARTH'S RELIEF, THE CONDITION OF SOILS AND THE VEGETATION COVER NOT ONLY IS MADE POSSIBLE BY A GREAT DISTANCE FROM THE PLANET, BUT HOWEVER STRANGE IT MAY SEEM, ALSO BY THE OPTICAL THICKNESS OF THE ATMOSPHERE. ASTRONOMERS CONSTANTLY COMPLAIN ABOUT THE ATMOSPHERE BECAUSE IT HINDERS THEM FROM OBSERVING THE PLANETS AND STARS. THE AIR LAYER IS ALSO A HINDRANCE WHEN VIEWING SMALL FEATURES ON THE EARTH'S SURFACE FROM ABOARD A SPACESHIP. HOWEVER, IT APPEARS THAT IN THE CASE OF GLOBAL OBSERVATIONS THIS ATMOSPHERIC PROPERTY BECOMES USEFUL. THE FACT IS THAT IT CONCEALS SECONDARY SMALL FEATURES OF THE PATTERN WHICH LIES BENEATH THE OBJECTIVE OF THE SATELLITE CAMERA. AS A RESULT, THE MOST CHARACTERISTIC FEATURES OF GEOLOGICAL STRUCTURES, VEGETATION COVER, AND SOIL REMAIN ON THE PHOTOGRAPH.

UNCLASSIFIED

3/6 068

CIRC ACCESSION NO--AN0131966

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--UNIMPORTANT FEATURES ARE SEEMINGLY ABSORBED BY THE AIR LAYER AND ARE NATURALLY FILTERED OUT. I FEEL THAT THIS IS AN IMPORTANT ADVANTAGE OF PHOTOGRAPHS TAKEN FROM SPACE IN COMPARISON WITH IMAGES OBTAINED BY AERIAL PHOTOGRAPHY. THE PHOTOGRAPHS TAKEN FROM AN AIRCRAFT HAVE SO MANY DETAILS THAT "THE FOREST CANNOT BE SEEN FOR THE TREES"; THE MOST IMPORTANT CHARACTERISTICS ESCAPE ATTENTION, SUCH AS THOSE WHICH MIGHT REVEAL THE NATURE OF ROCK BEDDING IN A PARTICULAR REGION TO A GEOLOGIST. IT IS VERY IMPORTANT THAT PHOTOGRAPHS OF THE SAME AREA TAKEN FROM A SATELLITE AT SHORT TIME INTERVALS CAN BE EXAMINED STEREOSCOPICALLY, RECREATING AN IMAGE OF THE SURFACE RELIEF AND CLOUD COVER SIMULTANEOUSLY OVER GREAT AREAS. THIS IS VERY IMPORTANT FOR CARTOGRAPHERS, GEOGRAPHERS AND METEOROLOGISTS. I WOULD SAY THAT SATELLITES AND ORBITAL STATIONS APPEARED IN TO ARSENAL OF TECHNIQUES FOR STUDYING OUR PLANET AT AN EXTREMELY FITTING MOMENT. WITH EVERY PASSING YEAR MAN'S ACTIVITY IS MORE AND MORE CHANGING THE EARTH'S FACE. NEW RESERVOIRS ARE BEING CONSTRUCTED, VIRGIN LANDS ARE BEING EXPLOITED, GIANT OPEN PITS ARE APPEARING IN MINERAL DEPOSITS, ROADS ARE BEING CONSTRUCTED, AND SETTLEMENTS ARE GROWING. THIS MEANS THAT MAPS ARE BEING RAPIDLY OUTDATED. THIS APPLIES WITH PARTICULAR FORCE IN OUR COUNTRY, IN WHICH THE RATE OF PURPOSEFUL ACTIVITY HAVE MULTIPLIED OVER THE ENORMOUS EXTENT OF OUR LAND. EVEN AN AERIAL PHOTOGRAPHIC SURVEY SOMETIMES IS UNABLE TO KEEP IN STEP WITH ALL THE CHANGES AND SURFACE MAP COMPILATION METHODS ARE EVEN LESS ABLE TO DO SO. HERE SATELLITES CAN EXERT A TRULY INESTIMABLE ASSISTANCE TO CARTOGRAPHERS.

UNCLASSIFIED

4/6 068

CIRC ACCESSION NO--AN0131966

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--LITERALLY WITHIN A FEW DAYS THEY ARE CAPABLE OF REPEATEDLY PHOTOGRAPHING THE ENTIRE TERRITORY OF OUR COUNTRY. BY COMBINING SPACE SURVEYS WITH GROUND SURVEYS AND AERIAL PHOTOGRAPHY IT IS POSSIBLE TO ENSURE THE NEEDS OF THE NATIONAL ECONOMY FOR NEW PRECISE MAPS ON A ROUTINE BASIS. INCIDENTALLY, A SPACE SURVEY OF THE TERRAIN IN THE LONG RUN IS CHEAPER THAN AN AERIAL PHOTOGRAPHIC SURVEY. IT IS NOT CARTOGRAPHERS ALONE WHO ARE INTERESTED IN PHOTOGRAPHING THE EARTH FROM SPACE. IT IS IMPORTANT FOR AGRICULTURAL WORKERS TO KNOW HOW THE STATE OF THE SNOW COVER IS CHANGING AND HOW SOIL MOISTURE CONTENT IS AT DIFFERENT TIMES (IN MOST CASES MOIST SOIL LOOKS DARKER ON PHOTOGRAPHS THAN DRY SOIL). IMAGES OF THE SEA SURFACE CAN TELL MARINERS THE HEIGHT OF WAVES IN THE REGIONS WHICH AFFECT THEM. NATURALLY, THE WAVES THEMSELVES CANNOT BE SEEN FROM ORBITAL ALTITUDE. HOWEVER, BY STUDYING THE NATURE OF SOLAR REFLECTIONS ON THE WATER SURFACE AND THE DEGREE OF POLARIZATION OF REFLECTED SUNLIGHT IT IS POSSIBLE TO MAKE A QUITE ACCURATE ESTIMATE OF WAVE HEIGHTS. IT GOES WITHOUT SAYING THAT ALL THIS INFORMATION CAN BE OBTAINED ON A ROUTINE BASIS BY RECEIVING TELEVISION IMAGES FROM SPACE. GEOLOGISTS EXPECT MUCH FROM SPACE PHOTOGRAPHS. IT APPEARS THAT IN ORDER TO SEE BETTER WHAT LIES IN THE DEPTHS OF THE PLANET IT IS FREQUENTLY DESIRABLE TO GO UP HIGH, INTO CIRCUMTERRESTRIAL ORBIT. THE FACT IS THAT DIFFERENT KINDS OF MINERALS ARE FOUND IN VERY DEFINITE GEOLOGICAL STRUCTURES. THEY, IN TURN, ARE DETECTED FROM CHARACTERISTICS OF MACRO RELIEF AND SURFACE ROCKET OUTCROPS.

UNCLASSIFIED

5/6 068

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AN0131966

ABSTRACT/EXTRACT--ANALYSIS OF THESE FEATURES ENABLES GEOLOGISTS TO DETERMINE THE REGIONS IN WHICH CERTAIN MINERALS SHOULD BE SOUGHT AND THEN SEND OUT GEOLOGICAL PARTIES FOR THEIR EXPLORATION. IS MAN NECESSARY ABOARD AN ORBITAL STATION FOR MAKING SPACE SURVEYS OF THE EARTH? UNDOUBTEDLY THE PARTICIPATION OF A QUALIFIED SPECIALIST GREATLY BROADENS THE RANGE OF PROBLEMS WHICH CAN BE SOLVED BY THE SPACE PHOTOGRAPHY METHOD AND CONSIDERABLY INCREASES THE EFFICIENCY IN EMPLOYING MANY KINDS OF INSTRUMENTATION WHICH CAN BE USED FOR STUDYING THE EARTH'S SURFACE FROM SPACE. IN ORDER FOR THE PHOTOGRAPHS TO CONTAIN THE GREATEST POSSIBLE AMOUNT OF INFORMATION THE PHOTOGRAPHY MUST BE IN DIFFERENT PARTS OF THE SPECTRUM. FOR EXAMPLE, A PHOTOGRAPH IN INVISIBLE INFRARED LIGHT MAKES IT POSSIBLE TO SEE WHAT IS HIDDEN FOR THE NAKED EYE. THIS MEANS THAT IT IS NECESSARY TO EVALUATE CONDITIONS RAPIDLY AND ACTIVATE THE CAMERA WHICH IS BEST TO USE AT A PARTICULAR TIME. AUTOMATIC DEVICES CANNOT SOLVE SUCH PROBLEMS. THE RELOADING OF FILM, CHANGE OF LIGHT FILTERS, SELECTION OF INFORMATION FOR IMMEDIATE TRANSMISSION TO THE EARTH, FINE TUNING AND REGULATION OF INSTRUMENTS ALL REQUIRE THE PRESENCE OF A SPECIALIST ABOARD THE SPACE LABORATORY. SOVIET COSMONAUTS IN FLIGHTS ABOARD THE "VOSTOK," "VOSKHOD" AND "SOYUZ" SHIPS MADE MANY VALUABLE OBSERVATIONS OF THE EARTH'S SURFACE, CLOUD COVER, AND ATMOSPHERIC OPTICAL PHENOMENA. AS IS WELL KNOWN, THE WORK PROGRAM FOR THE CREW OF THE "SOYUZ 9" SHIP INCLUDED SCIENTIFIC OBSERVATION AND PHOTOGRAPHING OF GEOLOGICAL AND GEOGRAPHIC FEATURES AND THE CONTINENTAL AND WATER SURFACE IN DIFFERENT REGIONS OF THE EARTH.

UNCLASSIFIED

6/6 068

CIRC ACCESSION NO--AN0131966

UNCLASSIFIED

PROCESSING DATE--13NOV70

ABSTRACT/EXTRACT--THESE WERE THE FIRST, BUT HIGHLY PROMISING STEPS. IT
CAN BE SAID WITH ASSURANCE THAT STUDY OF THE PLANET FROM DISTANT SPACE
WILL PLAY AN EVER INCREASING ROLE IN THE DISCOVERY AND ZEALOUS
EXPLOITATION OF THOSE NATURAL RESOURCES AT OUR DISPOSAL AS EACH YEAR
PASSES.

UNCLASSIFIED

USSR

RODIONOV, D. A., VERKHOVSKAYA, L. A.

UDC: 8.74

"'Nairi-2' Computer Algorithm and Program for the Statistical Method of
Detecting Anomalous Groups in the Results of Geochemical Sampling"

V sb. Stat. metody geol. issled. (Statistical Methods in Geological Re-
search--collection of works), vyp. 4, Moscow, 1971, pp 10-14 (from RZh-
-Kibernetika, No 5, May 72, Abstract No 5V548)

[No abstract]

1/1

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USSR

POLYAKOV, V.I., RCDICHOV, F.V., STEPANCHUK, V.P.

UDC 621.384.625.8

"Small-Size Microtron"

Zh.tekhn.fiz. (Journal Of Technical Physics), 1971, 41, No 8, pp 1667-1671
(from RZh--Elektronika i yeye primeniye, No 12, Dec 1971, Abstract No 12a254)

Translation: The description and characteristics are presented of a microtron with an energy of 5.8 Mev, operating at a 3.2-cm wavelength. The cylindrical cavity of the microtron is excited from a waveguide of 12.5 x 28.6 mm cross section through an iris coupling with the lateral side of the cavity. A magnetron with a pulse power of 240 kw is used for excitation. The pulse duration amounts to 1 microsec and the repetition frequency is 830 Hz. 6 ref. R.M.

1/2 020
TITLE—EFFECT OF SEVIN ON LIVER FUNCTION AND STRUCTURE —U—
AUTHOR—(05)—KAGAN, YU.S., RODIONOV, G.A., VORONINA, L.YA., VELICHKO, L.S.,
KULAGIN, O.M.
COUNTRY OF INFO—USSR
SOURCE—FARMAKOL. TOKSIKOL. (MOSCOW) 1970, 33(2), 219-24
DATE PUBLISHED—70
SUBJECT AREAS—BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS—PESTICIDE, LIVER, RABBIT, CHOLINESTERASE, ENZYME ACTIVITY
CONTROL MARKING—NO RESTRICTIONS
DOCUMENT CLASS—UNCLASSIFIED
PROXY REEL/FRAE—2000/0162
CIRC ACCESSION NO—AP0123933
STEP NO—UR/0390/70/033/002/0219/0224
UNCLASSIFIED

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0123933

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. PROLONGED ADMINISTRATION OF SEVIN TO RABBITS AND RATS CHANGED LIVER FUNCTION AND REDUCED THE CHOLINESTERASE ACTIVITY IN THE BLOOD AND INTERNAL ORGANS. SEVIN INTRODUCED THROUGH A STOMACH PROBE AT 38 MG-KG DAILY FOR 1 MONTH INCREASED SERUM ALANINE AMINOTRANSFERASE AND ALK. PHOSPHATASE ACTIVITIES AND INCREASED THE RATIO OF LIVER WT. TO BRAIN WT. AT 7.6 MG-KG (ADDED TO THE FOOD) DAILY FOR 3 DAYS SEVIN INCREASED THE DURATION OF HEXOBARBITAL SLEEP AND SOMEWHAT INCREASED THE WT. RATIO OF LIVER TO BRAIN. SEVIN ADMINISTERED TO RABBITS AT 0.76 MG-KG AND TO RATS AT 0.38 MG-KG DAILY INHIBITED LIVER FUNCTION. REDUCED CHOLINESTERASE ACTIVITY AND CHANGES IN SERUM PROTEIN FRACTIONS WERE OBSD. WITH ALL DOSES. THE PESTICIDE INDUCED NECROTIC CHANGES IN THE LIVER. HTOCHEM. STUDIES SHOWED SHIFTS IN THE CONTENT AND DISTRIBUTION OF GLYCOGEN, IN LIVER SUCCINATE DEHYDROGENASE, AND IN CHOLINESTERASE OF THE BRAIN, SPINAL COLUMN, AND MOTOR NERVE ENDINGS OF THE STRIATED MUSCLES. SEVIN DID NOT ACCUMULATE IN THE BODIES OF RATS AND RABBITS. FACILITY: VSES. NAUCH. ISSLED. INST. GIG. TOKSIKOL. PESTITS., POLIM. PLAST. MASS, KIEV, USSR.

UNCLASSIFIED

USSR

UDC 612.014-576.3

FUDEL'-OSYPOVA, S. I., RODIONOV, G. O., and SOKUR, A. I., Laboratory of Physiology, Pathological Morphology and Histochemistry, All Union Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics, Kiev

"Sodium and Potassium Permeability of Muscle Fiber Membrane in Warm-Blooded Animals"

Kiev, Fiziologicheskii Zhurnal, No 5, 1972, pp 654-660

Abstract: In acute experiments with rats, DDT (1/2 LD₅₀) altered both the electrolyte composition of the blood and the potassium-sodium ratio in striated muscle. It increased the content of potassium ions in the muscle fibers by 34.9% while reducing the content of sodium ions by 21.3%. Histochemical examination of muscle preparations revealed an increase in ATP-ase activity. DDT apparently stimulates the transport of potassium and sodium ions in muscle cells. The authors hypothesize the existence of two separate channels to transport them across the membranes.

1/1

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USSR

UDC 612.741+154.2

VINOGRADOVA, O. L., KOTS, Ya. M., RODIONOV, I. M., and TKHOREVSKIY, V. I.,
Chair of Human and Animal Physiology, Soil Biology Faculty, Moscow State
University; Chair of Physiology, State Central Institute of Physical Culture;
and Department of Labor Physiology, Institute of Labor Hygiene and Occupational
Diseases, Academy of Medical Sciences SSSR, Moscow

"Independence of an Emotionally Induced Increase in Muscle Work Capacity From
the Blood Flow Through Working Muscles"

Leningrad, Fiziologicheskiy Zhurnal SSSR imeni I. M. Sechenov, Vol 59, No 5,
1973, pp 781-788

Abstract: Measurements were made on young human subjects instructed to compress
the handle of a fist dynamometer for as long as possible while performing mental
calculations of mathematical problems presented at 3-sec intervals, with the
time allowed for each problem indicated by light flashes and the beat of a metro-
nome. The results revealed that emotional excitation increases the endurance
of working muscles by about 50% on the average and accelerates blood flow
through resting muscles (plethysmographic measurement). However, there is
no increase in blood flow through the working muscles when the force of con-
traction is 60% of the maximum force that can be generated voluntarily.
Similarly, the endurance of working muscles is increased by 40% and 30%
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USSR

VINOGRADOVA, O. L., et al., Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov,
Vol 59, No 5, 1973, pp 781-788

respectively when the effort is only 30% of the maximum but an increase in blood flow is prevented by partial occlusion of the brachial artery or the flow is arrested by complete occlusion of that vessel. The emotionally induced cholinergic discharge by the sympathetic system not only causes vasodilation in resting muscles but also stimulates glycolysis, production of lactic acid, and activation of phosphorylase. It is therefore concluded that the emotionally induced increase in muscle capacity to do static work is due to an augmented anaerobic metabolism in muscle tissue and is independent of the blood flow prevailing in the working muscles.

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USSR

UDC 669.017:669.018:559.570

BUYNOV, N.N., KARAKHANYAN, R.A., ROMANOVA, E.R., BULYCHEV, D.K., and RODICHOV, K.P., Institute of Metal Physics, Academy of Sciences USSR

"Distribution of Strain in Metals and Alloys After Hydroextrusion"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 31, No 2, Feb 71, pp 304-310

Abstract: By electron microscopy and measurements of hardness it was shown that strain distribution in different metals and alloys, deformed by hydroextrusion, is substantially different and that for each material there should exist an optimum magnitude of friction on the surface of contact between the die and sample which provides a uniform distribution of strain along the transverse cross section of a hydroextruded part. The dislocation structure of tungsten and VM1 molybdenum, deformed to different degrees by a two-stage hydroextrusion process, was studied. Increase in the strain rate for tungsten and use of double extrusion for VM1 molybdenum provides produces a cellular structure with exceptionally small cells (down to 0.3 microns. This is particularly true when a very high rate of deformation is applied (100,000 mm/sec). 4 figures, 1 table, 14 bibliographical references.

1/1

- 88 -

1/2 031

UNCLASSIFIED

PROCESSING DATE--27NOV70
TITLE--THE PLASTICITY AND STRENGTH OF SOLID BODIES AT HIGH PRESSURES -U-

AUTHOR--(05)-BERESNEV, B.I., MARTYNOV, YE.D., RODIONOV, K.P., BULYCHEV,
D.K., RYABIBIN, YU.N.
COUNTRY OF INFO--USSR

R
SOURCE--THE PLASTICITY AND STRENGTH OF SOLID BODIES AT HIGH PRESSURES
(PLASTICHNOST' I PROCHNOST' TVERDYKH TEL PRI VYSOKIKH DAVLENIYAKH)
DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--PLASTIC DEFORMATION, HIGH PRESSURE EFFECT, MECHANICAL
STRENGTH, METAL MECHANICAL PROPERTY/(U)GTSK METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3003/1703

CIRC ACCESSION NO--AM0130571

STEP NO--UR/0000/70/000/000/0001/0159

UNCLASSIFIED

2/2 031

CIRC ACCESSION NO--AM0130571
ABSTRACT/EXTRACT--(U) GP-0-

UNCLASSIFIED

PROCESSING DATE--27NOV70

INTRODUCTION 9. CHAPTER I. THE EQUIPMENT FOR THE REALIZATION OF
PLASTIC DEFORMATION OF SOLID BODIES AT HIGH PRESSURES 11. II.
PLASTICITY, STRENGTH AND DESTRUCTION OF SOLID BODIES AT HIGH PRESSURE
39. III. THE INFLUENCE OF DEFORMATION UNDER HIGH PRESSURE ON THE
PROPERTIES OF PLASTIC GTSK (?) METALS 99. LITERATURE 158. THE
MONOGRAPH DEALS WITH QUESTIONS CONNECTED WITH THE DEVELOPMENT OF
EQUIPMENT FOR THE CREATION OF PRESSURE IN LIQUID UP TO 25,000 KG-CM
PRIME2 AS WELL AS FOR THE REALIZATION UNDER THESE CONDITIONS OF PLASTIC
DEFORMATION. DESCRIBED IS THE INFLUENCE OF PRELIMINARY DEFORMATION
UNDER PRESSURE ON THE CHANGE IN MECHANICAL PROPERTIES FOR VARIOUS
METALS. THE BOOK IS DESIGNED FOR SPECIALISTS IN THE PHYSICS OF SOLID
BODIES AND METALLURGISTS.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--EFFECT OF PRESSURE ON THE EFFECTIVE MASS OF ELECTRONS IN INDIUM
ARSENIDE -U-
AUTHOR--(03)-DEMCHUK, K.M., TSIDILKOVSKIY, I.M., RODIONOV, K.P.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(5), 997-1000
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS, CHEMISTRY
TOPIC TAGS--INDIUM ARSENIDE, ELECTRON STRUCTURE, MODEL, SINGLE CRYSTAL,
ELECTROMOTIVE FORCE, HALL EFFECT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3003/0145 STEP NO--UR/0449/70/004/005/0997/1000
CIRC ACCESSION NO--AP0129401
UNCLASSIFIED

2/2 023

CIRC ACCESSION NO--AP0129401

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. THE INFLUENCE OF HYDROSTATIC PRESSURE (P IS SMALLER THAN OR EQUAL TO 12 KILOBARS) ON THE EFFECTIVE MASS OF THE ELECTRONS AT SIMILAR TO 95 DEGREES K WAS MEASURED IN 20 TIMES 3 TIMES 2.5 MM SPECIMENS OF SINGLE CRYSTAL N INAS WITH CARRIER CONCS. OF 3.7 TIMES 10^{16} MINUS 6.2 TIMES 10^{17} CM $^{-3}$. THE EFFECTIVE MASS WAS DETERMINED FROM MEASUREMENTS OF THE THERMAL EMF. AND OF THE HALL EFFECT IN STRONG MAGNETIC FIELDS (H IS SMALLER THAN OR EQUAL TO 20 KOE). A THEORETICAL MODEL BASED ON THE 2 BAND APPROXIMATION BY E. O. KANE (1957) DESCRIBES THE EXPERIMENTAL DATA WELL. FACILITY: INST. FIZ. METAL., SVERDLOVSK, USSR.

UNCLASSIFIED

1/2 035 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--EFFECT OF UNIFORM COMPRESSION ON THE ROTATION EFFECT IN ANTIMONY

-U-

AUTHOR--BROYDE, YE.L., TSIDILKOVSKIY, I.M., RODIONOV, K.P.

COUNTRY OF INFO--USSR

SOURCE--PIS'MA ZH. EKSP. TEOR. FIZ. 1970, 11(2), 101-5

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--COMPRESSIVE STRESS, SINGLE CRYSTAL PROPEPTY, ANTIMONY, THERMAL
EMF, ENERGY SPECTRUM, MAGNETIC FIELD CONFIGURATION, CRYSTAL ORIENTATION,
HIGH PRESSURE EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAE--1987/0747

STEP NO--UR/0386/70/011/002/0101/0105

CIRC ACCESSION NO--AP0104201

UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0104201

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SINCE THEORETICAL AND EXPTL. DATA INDICATE THAT COMPRESSION ALTERS THE RATIO BETWEEN THE CRYSTAL AXES AND THE RHOMBOHEDRAL ANGLE OF THE SB UNIT CELL IN SUCH A WAY THAT THE STRUCTURE TENDS TO THE CUBIC TYPE, CURRENT CARRIER SPECTRA SHOULD ALSO BE AFFECTED, AND THE ROTATION EFFECT SHOULD DIMINISH. UNDER THIS PRESUMPTION, THE COMPRESSION ROTATION EFFECT RELATION SHOULD YIELD DIRECT INFORMATION ON THE ENERGY SPECTRA OF CURRENT CARRIERS. AN EXPTL. PROOF OF THE CORRECTNESS OF THIS PRESUMPTION WAS ATTEMPTED. THE THERMOEMF. OF SB SINGLE CRYSTAL. SAMPLES CUT FROM BRIDGMAN GROWN INGOTS WAS MEASURED IN MAGNETIC FIELDS UP TO 3 KOE, PRESSURES UP TO 12 KILOBARS, AND A TEMP. OF 97DEGREESK. WITH MAGNETIC FIELDS ORIENTED ALONG THYC SUB1 AND C SUB2 AXES, A ROTATION EFFECT WAS OBSO. IN THE DIAGONAL COMPONENTS OF THE THERMOEMF. ALPHA SUB22 (H) ALPHA SUB33 (H). IN MAGNETIC FIELDS PARALLEL TO THE TRIGONAL AXIS C SUB3, NO ROTATION EFFECT WAS OBSO. OF ALPHA SUB22 (H). MEASUREMENTS WERE ALSO MADE AT DIFFERENT ORIENTATIONS OF THE TEMP. GRADIENT AND THE MAGNETIC FIELD WITH RESPECT TO THE CRYSTALLOGRAPHIC AXES. DELTA ALPHA-ALPHA SUBO -H CURVES WERE PLOTTED. A MATH. EXPRESSION WAS DERIVED FOR THE EVALUATION OF THE ROTATION EFFECT. THE PRESSURE, DELTA ALPHA-ALPHA SUBO CURVES FOR DIFFERENT ORIENTATIONS OF THE TEMP. GRADIENT AND THE MAGNETIC FIELD INDICATE THAT THE ROTATION EFFECT DIMINISHES AT HIGH PRESSURES. THIS EFFECT IS CONSIDERED TO BE DIRECT EVIDENCE THAT THE ANGLE BETWEEN THE CONST. ENERGY ELLIPSOID AND THE MAJOR BRILLOUIN ZONE AXIS DECREASES WITH INCREASING PRESSURE.

UNCLASSIFIED

ISSR

UDC 624.131.43+539.21.084-492.3

RODIONOV, L. V.

"On the Deformability of Peat Deposits Under the Action of Periodic Dynamic Loads"

[Tr.] Kalinin. politekhn. in-ta ([Works of] Kalinin Polytechnical Institute), 1971, No. 6(19), pp 116-119 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V878)

Translation: Experiments in which a peat deposit was subjected to the dynamic action of a vibrating plate with a specific static pressure of 0.1 kg/cm^2 at frequencies from 3 to 13 Hz are described. The maximum specific dynamic pressure under operation of the plate was 1.2 kg/cm^2 . The weight of the vibration plate was 1500 kg. The greatest permanent deformations of the deposit were noted at resonance frequencies; the natural frequency of the deposit was evaluated as a function of the moisture and the depth from 4 to 13 Hz. In the region above resonance the permanent deformations were slight. Amplitudes of forced oscillations were measured in the deposit at various depths within the limits of 1 m. The maximum amplitude of longitudinal oscillations at a frequency of 7 Hz (close to resonance) was observed on the surface and was 4.1 mm and at a depth of 1 m was 0.6 mm. These values were 7.2 mm and 1.5 mm, respectively, for transverse oscillations. B. I. Didukh.
1/1

80

Marine and Shipbuilding

USSR

629.123.56-181.2

R
SOKOLOV, D. G., RODIONOV, N. N. FRID, Ye. G.

"Plan For the First Soviet 150,000 Ton Deadweight Tanker"

Moscow, Sudostroyeniye, No. 4, 1970, pp 14-17.

Abstract: In order to increase the capacity of the Soviet merchant fleet for transportation of petroleum products, a 150,000 ton deadweight tanker has been planned. Planning-research work was performed during 1968-1969, including computerized studies using the Minsk-22 computer. The result is a plan for a 150,000 ton tanker, this deadweight being considered a good compromise between the desire for maximum possible weight to achieve greater economy and the necessity to limit size (and therefore weight) for reasons of maneuverability. The ship will be similar in design to such supertankers as the Tokyo Maru and Bergenhaven. It will use a 30,000 hp steam turbine power plant with intermediate steam superheating. This design was compared with two variations of diesel power, and found to be more economically effective. In order to improve maneuverability, two transverse passages, one each in bow and stern, are provided, through which water can be pumped to help turn the ship. The 8 meter diameter screw will have the variable pitch feature. Extensive space is provided in the crew living quarters for study, sports and recreation of the 34-36 man crew. The

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USSR

SOKOLOV, D. G., et al., Sudostroyeniye, No 4, 1970, pp 14-17

superstructure is designed to be usable without major design alteration in tankers of 100,000 to 300,000 tons deadweight. The basic dimensions of the tanker are to be as follows: length between perpendiculars 272 m, width 45.0 m, draft 17.0 m, side height 24.4 m, filling factor 0.830.

2/2

USSR

UDC 677.521:532.64

SINITSYN, V. A., RODIONOV, R. A., TELESHOV, V. A., All-Union Scientific Research Institute for Glass Plates and Glass Fibers

"Effective Value of the Advancing Angle in Impregnation of Porous Glass Fibers with Polymer Dispersions"

Moscow, Kolloidnyi Zhurnal, vol 35, No 6, November-December 73, pp 1191-1193

Abstract: Impregnation of glass fibers with ethanol, toluene, and *n*-heptane at 20°C, water at 20 and 80°C, and 4.85-27.33% aqueous dispersions of latex at 20-80°C was studied. From data on the ratios of the experimentally determined specific surface area to calculated values, the cosine of the advancing angle for the organic substances was found to be 3 to 4 times that for water. For the latex, the data indicate that the experimental value of the specific surface area increased with increasing temperature, showing that a larger part of the glass fiber surface participates in the impregnation at 80 than at 20°C. Heating of the high-concentration aqueous dispersion provided impregnation conditions similar to those of low-concentration latex, with an increased impregnation rate. The dependence of the capillary rise on time was determined experimentally, and the specific surface area of the glass fibers, whose radii were known, was calculated from the experimental data.

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Polymers and Polymerization

USSR

UDC 542.955:546.27'161:547.1'118:678.643'42'5:678.043

1

SADYKOVA, E. M., CHELNOKOVA, Z. B., KOLLI, I. D., RODIONOV, R. A., and SPITSYN, VIKT. I., Moscow State University Imeni M. V. Lomonosov

"Addition Products of Boron Trifluoride With Phosphines as Reinforcement Agents for Epoxy Resins"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 786-790

Abstract: Addition complexes of boron trifluoride and phosphines: P-tri-n-butyl-B-trifluorophosphineboron (BPB), and P-triphenyl-B-trifluorophosphineboron (PPB) were used as reinforcing agents for the epoxy resin ED-5. Optimal conditions for their use were as follows: 25 parts by weight of the complex per 100 of the resin, temperature -- 150°C, duration of the process -- 12 hrs. The products obtained showed excellent durability even at elevated temperatures, improved fire-retardant properties, and excellent light transmission. Infrared spectra of the products were studied and on their basis it was shown that the reactions involved in above processes go in two directions: reaction of the complex with the oxygen of the epoxide group leading to the formation of a phosphine ion which then acts as a stabilizer towards oxidative degrada-

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USSR

SADYKOVA, E. M., et al, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 4, Apr 72, pp 786-790

tion, and a reaction of the complex with the hydroxyl group oxygen in presence of air; this leads to a reduction of the number of hydroxyl groups in the re-inforced product and binding of the air oxygen, so that the degradation is slowed down and the transparency of the product is improved.

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- 69 -

Pharmacology and Toxicology

USSR

RODIONOVA, R. P., IVANOV, N. G., KAZBEKOV, I. M.

"Toxicity of beta-Ethoxypropionitrile"

Sb. "Toksikol. novykh prom. khim. veshchestv" (Toxicology of New Industrial Chemicals--Collection of Works), 1973, vyp. 13, Moscow, "Meditsina," pp 131-138 (from Referativnyy Zhurnal, 30F, Biologicheskaya Khimiya, No 18, 25 September 1973, Abstract No 18F1734)

Translation: The maximum permissible concentration (MPC) of beta-ethoxypropionitrile in the air of a working area was confirmed to be 0.05 mg/liter, which agrees with values calculated from physical-chemical (molecular weight, boiling point, volatility) and biological constants. It is noted that, for other nitriles that release a CN group, the MPC is much lower (0.0005 mg/liter for acrylonitrile).

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USSR

UDC 539.3

RODIONOVA, V. A., Leningrad State University

"Numerical Calculation of Freely Supported Cylindrical Shells With an Arbitrary Cross Section"

Kiev, Prikladnaya Mekhanika, Vol 9, No 9, 1973, pp 76-81

Abstract: Consideration is given to an algorithm for the calculation of freely supported closed cylindrical shells, the elastic and geometric characteristics of which change arbitrarily along the directrix. The algorithm is based upon the net-point method and matrix cyclical elimination. The effectiveness of this method is verified on the basis of examples of the calculation of shells with a circular and an elliptical cross section of constant thickness during the action of a linear radial load, uniformly distributed along a segment of the generatrix. The results are compared with the available analytic solution. 1 table. 7 references.

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- 105 -

Hydrobiology

USSR

UDC 591.173:599-536

SOKOLOV, V. YE., KOKSHAYSKIY, N. V., and RODIONOV, V. A.

"An Experiment on Transporting Porpoises and a Study of Their Swimming Behavior in an Experimental Tank"

Moscow, Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, otdel Biologicheskii, Vol 76, No 4, Jul/Aug 71, pp 37-46

Abstract: A number of porpoises (*Phocaena phocaena*) were captured in the Black Sea and kept for two weeks in an open-air marine enclosure. Two adult males were flown to Moscow in an inflated rubber boat partly filled with sea water. The trip took 9 hours, with actual flying time of 4-1/2 hours, after which the mammals were kept in fresh water for 3 hours, and then released into a tank filled with fresh water. Because they were partly submerged in water, the porpoises tolerated air travel, accompanied by a drop in barometric pressure at an altitude of 1,800, quite well. They rapidly adjusted themselves to the test tank environment and to the various experimental conditions. Their behavior differed insignificantly from that in the open-air cage in the sea. Experiments were made with visualization of the flow of water around the swimming porpoises and in their wake by means of air bubbles and

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USSR

SOKOLOV, V. YE., et al., Byulleten' Moskovskogo Obshchestva Ispytateley Prirody, otdel Biologicheskiiy, Vol, 76, No 4, Jul/Aug 71, pp 37-46

polystyrene granules. More complex studies can apparently be carried out after special training methods have been developed, making it quite possible to obtain complete information on a dolphin's swimming hydrodynamics by direct observation of living specimens.

2/2

USSR

UDC:662.215.2

AL'TSHULER, L. V., BALABANOV, A. V., BATALOV, V. A., RODIONOV, V. A.,
TARASOV, D. M., Moscow

"X-Ray Structural Study of the Initial Stage of Development of an Under-
ground Explosive Cavity in Sandy Soil"

Novosibirsk, Fizika Goreniya i Varyva, Vol. 6, No. 3, Sep 70, pp. 363-373

Abstract: The authors studied the kinetics of development of underground explosive cavities in various media, including study of the earliest phases of these processes, in order to determine the effective mechanical characteristics of soils, to test and clarify the equations of state of the explosion products and current calculation methods. The experimental observation was performed by transmission of x-rays through massive sections containing explosive charges in short bursts of x-rays. This report describes the experimental methodology and data produced in non-saturated sand, and also presents idealized mathematical calculations of underground explosions in compressible media, which are used for interpretation of the results produced.

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- 53 -

USSR

UDC: 8.74

RODIONOV, V. I.

"Computer Technology and Programming"

Sb. tr. Gos. in-t po proyektir. z-dov san.-tekhn. oborud. (Collected Works. State Institute on Designing Sanitary Equipment Plants), 1972, vyp. 8, pp 8-31 (from RZh-Kibernetika, No 8, Aug 72, Abstract No 8V665)

[No abstract]

1/1

- 74 -

1/2 018 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--INCORPORATION OF RADIOACTIVELY LABELED PRECURSORS INTO HISTONES AND
DNA OF REGENERATING RAT LIVER -U-
AUTHOR-(03)-ORLOVA, L.V., SMIRNOVA, N.V., RODIONOV, V.M.

COUNTRY OF INFO--USSR

SOURCE--TSITOLOGIYA 1970, 12(1), 111-14

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--RADIOACTIVE TRACER, DNA, ORGAN REGENERATION, MALE RAT, LIVER,
LEUCINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1996/0458

STEP NO--UR/9053/70/012/001/0111/0114

CIRC ACCESSION NO--AP0117694

UNCLASSIFIED

UNCLASSIFIED

PROCESSING DATE--30OCT70

2/2 018

CIRC ACCESSION NO--AP0117694
ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. MALE RATS (WT. 180-200 G) WERE
KILLED 6, 12.5, 14, 15, 17, AND 18 HR AFTER PARTIAL HEPATECTOMY; 30 MIN
BEFORE SACRIFICE, THYMIDINE, 2, PRIME14C AND LEUCINE, 2, PRIME3H (20 AND 40
MUCI-100 G, RESP.) WERE INJECTED I.P. FROM THE INCORPORATION OF THE
LABELED COMPS. INTO SOL. AND PRECIPITABLE HISTONES AND DNA, IT WAS
FOUND THAT THE SYNTHESIS OF HISTONES STARTED BETWEEN 12.5 AND 14 HR,
WHILE THE SYNTHESIS OF DNA BEGAN 15 HR AFTER HEPATECTOMY.
FACILITY: LAB. CELL BIOCHEM., INST. BIOL. MED. CHEM., MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--THE TIME OF HISTONE SYNTHESIS IN REGENERATING RAT LIVER -U-
AUTHOR--(02)-ORLOVA, L.V., RODIONOV, V.M.
COUNTRY OF INFO--USSR
SOURCE--EXP CELL RES 59(2): 329-333. 1970
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LIVER, TISSUE, TRITIUM, CHEMICAL LABELLING, AMINO ACID
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1989/1367 STEP NO--US/0000/70/059/002/0329/0333
CIRC ACCESSION NO--AP0107840
UNCLASSIFIED

2/2 019

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0107840

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. CHANGES IN THE CONTENTS OF HISTONES AND DNA IN THE CELL NUCLEI OF REGENERATING RAT LIVER CELLS AS WELL AS INCORPORATION OF RADIOACTIVE LEUCINE AND THYMIDINE IN THESE SUBSTANCES WERE STUDIED. THE AMOUNT OF HISTONES IN THE NUCLEI OF REGENERATING LIVER CELLS THEIR INCORPORATION OF PRIME3 H, LEUCINE STARTED TO INCREASE AND REACHED THE MAXIMUM EARLIER THAN THE RESPECTIVE ONSET AND PEAK OF THE DNA CONTENT, AND UPTAKE OF PRIME14 C, THYMIDINE. CHANGES IN THE HISTONE AMOUNT IN THE NUCLEI OF REGENERATING LIVER CELLS CAN BE ACCOUNTED FOR BY CHANGES OCCURRING IN THE CELLS OF THE PROLIFERATIVE POOL. FACILITY: INST. BIOL. AND MED. CHEM., USSR. ACAD. MED. SCI., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr:

AP0037245

Ref. Code: UR 0301

PRIMARY SOURCE: Voprosy Meditsinskoy Khimii, 1970, Vol 16,
Nr 1, pp 95-98

HAPTOGLOBIN METABOLISM AT THE ANTISEPTIC INFLAMMATORY PROCESS

V. M. Rodionov, A. V. Pospelova, Yu. P. Reshetko, T. G. Kulakova

Institute of Biological and Medical Chemistry USSR Academy of Medical Sciences,
Moscow

Haptoglobin metabolism in control dogs and at the antiseptic inflammatory process induced by subcutaneous turpentine oil administration has been studied. Dogs were injected with haptoglobin ^{125}I and changes in total radioactivity of the animal, blood serum label excretion, the volume of circulating plasma, and serum haptoglobin concentration were registered. In the period of inflammatory focus development the rearrangements of haptoglobin from blood into tissue, decreases in the rate of its catabolism and increase in its synthesis took place.

D. M.

REEL/FRA
19730172

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Nuclear Science and Technology

USSR

UDC 621.039.9

RODIONOV, V. N., and TSVETKOV, V. M.

"Some Results of Observations in Underground Nuclear Blasts"

Moscow, Atomnaya Energiya, Vol 30, No 1, Jan 71, pp 31-36

Abstract: The mechanical effect of an underground nuclear blast is characterized by the parameters of the irradiated waves and by the sizes of the areas of the irreversibly deformed medium: cavity volume, dimensions of the crushed zone, and discharge cone. Experimental determination of the maximum volume of the cavity, which may be notably different from the final volume, and determination of the size of the rupture zone pose great difficulties. At the same time these parameters are essential for evaluating the output energy in a seismic wave.

It is deemed very important to use information contained in the compression wave in direct proximity to the failure zone for determining the parameters of the irreversible deformation of the medium in underground blasts. A comparison was made of two American underground blasts and one Soviet underground blast which all occurred in rock salt strata. Blast energy, blast
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USSR

RODIONOV, V. N., and TSVETKOV, V. M., Atomnaya Energiya, Vol 30, No 1, Jan
71 pp 31-33

depth, conditions of blast testing, and final volume of the blast cavity are compared. A section of the article deals with a discussion of the compression wave and behavior of the medium outside the zone of failure. Other sections discuss a method of finding the boundary of the failure zone and the discompaction of the medium in the failure zone.

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UNCLASSIFIED

PROCESSING DATE--11SEP70

1/2 043

TITLE--INFRARED EQUIPMENT OF METEOR SYSTEM SATELLITES -U-

AUTHOR--VETLOV, I.P., YEREMIN, V.P., LISTRATOV, A.V., RODIONOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--METEOROLOGIYA I GIDROLOGIYA, 1970, NR 4, PP 80-91

DATE PUBLISHED-----70

SUBJECT AREAS--SPACE TECHNOLOGY, NAVIGATION

TOPIC TAGS--IR SENSOR, ATMOSPHERIC CLOUD, SPACECRAFT CARRIED EQUIPMENT,
METEOROLOGIC SATELLITE/(U)METEOR METEOROLOGIC SATELLITE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1987/1041

STEP NO--UR/0050/70/000/004/0030/0091

CIRC ACCESSION NO--AP0104439

UNCLASSIFIED

2/2 043
CIRC ACCESSION NO--AP0104439

UNCLASSIFIED

PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFRARED EQUIPMENT OF METEOR
SYSTEM SATELLITES DESTINED FOR TRACING THE CLOUD DISTRIBUTION OVER THE
HIGH AND DAY SIDES OF THE EARTH IS BEING DESCRIBED. PRINCIPLES OF
OPERATION OF THE EQUIPMENT, AN OPTICAL SCHEME OF THE ON BOARD RECEIVING
DEVICE, A BLOCK SCHEME OF THE GROUND PHOTO RECORDING DEVICE, THE BASIC
PARAMETERS AND CHARACTERISTICS OF THESE DEVICES ARE CONSIDERED. THE
RESULTS OF INTERPRETATION OF THE INFORMATION OBTAINED ARE DISCUSSED.

UNCLASSIFIED

Vacuum Tubes

USSR

UDC 621.385.6

NECHAYEV, V. YE., RODIONOV, V. V., FUKS, M. I.

"Linear Wave Analysis in Cylindrical Magnetron Systems Extended along an Axis"

Gor'kiy, Izvestiya Vysshikh Uchebnykh Zavedeniy--Radiofizika, Vol XIV, No 2, 1971, pp 317-322

Abstract: The problem of small oscillations of an electron flux in a magnetron has been investigated previously. It is of interest to study wave motion in magnetron systems developed in the axial direction. This paper contains an investigation of wave properties in wave guide magnetrons matched along the axis on the basis of a model with Brillouin electron flux and a longitudinally ribbed anode structure. The purpose of the linear analysis is establishment of possible forms of instability and the dependence of their domains on the system parameters. The helical waves in the Brillouin electron flux are investigated in the linear approximation. It is demonstrated that the presence of longitudinal electron velocity leads to the occurrence of a region of amplification.

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NECHAYEV, V. YE., et al. Izvestiya Vysshikh Uchebnykh Zavedeniy --
Radiofizika, Vol XIV, No 2, 1971, pp 317-322

The calculated results are illustrated by graphs of the dispersion curves for some standard values of the parameters. Processing analogous graphs for various values of the parameters makes it possible to estimate the mutual arrangement of the time instability regions of the waves (amplification and generation) as a function of the impedance of the anode structure, the proximity of the flux to the anode surface and the longitudinal electron velocity. It is noted that the results obtained are applicable to shortwave magnetron systems in which the phase lead per period of the decelerating system is appreciably less than π . The problem investigated here can be developed in the direction of studying the effect of anisotropic properties of anode structure and considering the radial gradient of the angular velocity of electrons.

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1/2 023
TITLE--PNEUMONIAS AFTER RESECTION OF THE LUNG FOR CANCER -U-
AUTHOR--(02)-RODIONOV, V.V., MAMONTOV, A.S.
COUNTRY OF INFO--USSR
SOURCE--VESTNIK KHIRURGII IMENI I. I. GREKOVA, 1970, VOL 104, NR 3, PP
16-21
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--LUNG, SURGERY, CANCER, PNEUMONIA, RESPIRATION, ANTIBACTERIAL
THERAPY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1986/0849
CIRC ACCESSION NO--AP0102810
STEP NO--UR/0589/70/104/003/0015/0021
UNCLASSIFIED

2/2 023

UNCLASSIFIED

PROCESSING DATE--02OCT70

CIRC ACCESSION NO--AP0102810

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ACCORDING TO THE AUTHORS DATA IN 57 OF 846 (6.7PERCENT) PATIENTS SUBJECTED TO PNEUMONECTOMY FOR CANCER POSTOPERATIVE PNEUMONIAS WERE OBSERVED. MAINTENANCE OF AN ADEQUATE DRAINAGE FUNCTION OF THE BRONCHIAL TREE PRIOR TO, DURING AND AFTER THE OPERATIVE PROCEDURE, AS WELL AS MEASURES DIRECTED TO PROMPT AND TOTAL EXPANSION OF THE REMAINED LUNG PORTION ARE BASIC CRITERIA OF PROPHYLAXIS AGAINST POSTOPERATIVE PNEUMONIAS IN PATIENTS SUBJECTED TO PULMONARY RESECTION FOR CANCER. ANTIBACTERIAL THERAPY AND MEASURES AGAINST ACUTE RESPIRATORY INSUFFICIENCY ARE OF PRIMARY IMPORTANCE IN TREATMENT OF POSTOPERATIVE PNEUMONIAS.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--NEW SYNTHESIS OF 4,4 PRIME,DIAMINO,2,2 PRIME,BIPHENYLYLENE
DISULFIDE -U-
AUTHOR--(03)-ZFELTOV, A.YA., RODIONOV, V.YA., STEPANOV, B.I.
COUNTRY OF INFO--USSR
SOURCE--ZH. VSES. KHIM. ODSHCHEST. 1970, 15(2), 234-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ORGANIC SYNTHESIS, AMINE, PHENYLENE, HETEROCYCLIC SULFUR
COMPOUND, POLYNUCLEAR HYDROCARBON
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1147 STEP NO--UR/0063/70/015/002/0234/0235
CIRC ACCESSION NO--AP0128569
UNCLASSIFIED

2/2 009

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128569

ABSTRACT/EXTRACT--(U) GP-O-

ABSTRACT. 1,4,2,ACNH(HO SUB3 S) C SUB6 H
SUB3) SUB2 WAS CONVERTED INTO THE DI,NA SALT, WHICH WITH 4.5 MOLES POWD.
PCL SUB5 15 MIN GAVE 60.5PERCENT DISULFONYL CHLORIDE, DECOMPOSED ABOVE
360DEGREES, ALSO FORMED IN 35PERCENT YIELD WITH ALSO SUB3 H IN 4 HR AT
80DEGREES, AND AT 20DEGREES OVERNIGHT FROM THE DISULFONIC ACID. THE
PRODUCT REFLUXED 15 MIN. WITH 55PERCENT HI IN ACOH, THEN HELD 1 DAY
AFTER FILTRATION, GAVE ON NEUTRALIZATION AT 0DEGREES 43PERCENT 4,4
PRIME,DIAMINO,2,2 PRIME BIPHENYLYLENE DISULFIDE (I), M. 174-50DEGREES,
ISOLATED VIA ITS HCL SALT. FACILITY:. MOSK. KHIM. TEKHNOL. INST.
IM. MENDELEEVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC: 539.293:535.215.12

GLINCHUK, K. D., RODIONOV, V. Ye., Institute of Semiconductors, Academy of Sciences of the UkrSSR

"Time Constant of Si(Zn) Photoresistors"

Kiev, Poluprovodnikovaya Tekhnika i Mikroelektronika, Resp. Mezhd. Sb., No 7, 1972, pp 27-31

Abstract: The authors study the kinetic characteristics of Si(Zn) photoresistors made by high-temperature diffusion of zinc atoms into low-resistance N-type silicon. An investigation was made of the kinetics of the intrinsic photoconductivity of Si(Zn) with partially compensated levels of zinc $\epsilon_1 = 0.31$ eV and $\epsilon_2 = 0.55$ eV. Alloyed ohmic contacts were used. In Si(Zn) with a weakly compensated 0.31 eV level, the relaxation constant for intrinsic photoconductivity was less than 0.1 μ s. In the case of investigation of the photoconductivity kinetics for Si(Zn) with strongly compensated 0.31 eV levels or with a partially compensated 0.55 eV level, a much more complicated picture was observed. Relaxation of photoconductivity in these cases was characterized by several time constants depending on the concentration of surplus electrons, with values ranging from 0.01 μ s to

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GLINCHUK, K. D., RODIONOV, V. Ye., Poluprovodn. Tekh. i Mikroelektron.
Resp. Mezhd. Sb., No 7, 1972, pp 27-31

10 ms. The observed differences in relaxation behavior are attributed to nonhomogeneity. Direct measurements show that the recombination properties in different regions of nonhomogeneous Si(Zn) photoconductors differ sharply. In the high-resistance region with partially compensated 0.31 eV level the neutral atoms of zinc play a predominant role in recombination, whereas the centers created in high-temperature heating of the silicon are decisive in the low-resistance region with completely filled 0.31 and 0.55 eV levels.

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- 75 -

USSR

UDC: 621.372.061

RODIONOV, Ya. G.

"Stationary Distributions of the Phase and the Derivative of Phase in a Follow-up Filter With Single-Polarity Control Circuit in the Case of Weakly Correlated Noises of Low Intensity"

V sb. Metody pomekhoizvozhivogo priyema ChM i FM (Methods of Interference-Free FM and FM Reception--collection of works), Moscow, "Sov. radio", 1970, pp 105-111 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A148)

Translation: The author investigates stationary distributions of the phase and the derivative of phase in a follow-up filter with single-polarity circuit for control of the resonance frequency in the case of weakly correlated noises of low intensity. It is shown that these distributions are normal with variances which depend on the parameters of the controlling circuit. Resumé.

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1/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--COMPUTER DETERMINATION OF APPROXIMATE DEPENDENCES OF THE ROOT MEAN.
SQUARE DEVIATIONS OF THE CRITICAL FREQUENCIES OF THE F2 LAYER ON

AUTHOR--GUBENKO, V.S., RODIONOV, YA.S.

COUNTRY OF INFO--USSR

SOURCE--GEOMAGNETIZM I AERONOMIJA, VOL 10, NO. 1, 1970, P 144-146

DATE PUBLISHED-----70

SUBJECT AREAS--ATMOSPHERIC SCIENCES, ASTRONOMY, ASTROPHYSICS

TOPIC TAGS--CRITICAL FREQUENCY, F LAYER, SOLAR ACTIVITY, GEOMAGNETIC
LATITUDE, SUNSPOT, COMPUTER APPLICATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0788

STEP NO--UR/0203/70/010/001/0144/0146

CIRC ACCESSION NO--AP0102751

UNCLASSIFIED

2/2 025

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0102751

ABSTRACT/EXTRACT--(U) GP-0-

ABSTRACT. CONSIDERATION OF THE PROBLEM OF DETERMINING APPROXIMATE DEPENDENCES OF THE RMS DEVIATIONS OF THE F2 LAYER CRITICAL FREQUENCIES ON LATITUDE AND SOLAR ACTIVITY IN A FORM SUITABLE FOR COMPUTER CALCULATION OF LONG RANGE IONOSPHERIC FORECASTS. IN CONTRAST TO CERTAIN OTHER WORKS ON THIS SUBJECT, WHERE ESTIMATES OF RMS DEVIATIONS ARE MADE FROM A QUANTILE RANGE, THE PROPOSED METHOD INVOLVES THE USE OF SAMPLE RMS DEVIATIONS, WHICH ARE A MORE ACCURATE ESTIMATE OF THE TRUE RMS DEVIATIONS. IN APPROXIMATING THESE DEPENDENCES, A POLYNOMIAL OF THIRD DEGREE WITH RESPECT TO THE GEOMAGNETIC LATITUDE AND OF SECOND DEGREE WITH RESPECT TO THE SUNSPOT NUMBER IS USED.

UNCLASSIFIED

USSR

UDC 612.451.015.32:547.922+612.451.015.6:577.164.2].00:612.766.1

RODIONOV, Yu. I., Chair of Biochemistry Karaganda Medical Institute

"The Effect of Physical Work on the Content of Cholesterol and Ascorbic Acid in the Adrenal Glands"

Moscow, Problemy Endokrinologii, Vol 16, No 4, Jul-Aug 70, pp 68-73

Abstract: In rats subjected to work for 2-10 hours, a decrease in the concentration of ascorbic acid and cholesterol in the adrenal glands was observed which was approximately proportional to the duration of work. In animals which were trained for 30 days and then performed the same work for the same period of time, a similar decrease in the ascorbic acid and cholesterol levels occurred, but only after the 10th day of work. The marked decrease in ascorbic acid content, as well as an observed increase in the rate of incorporation of $1-C^{14}$ -acetate into the cholesterol of the adrenal glands of trained rats after prolonged work, indicates an increase in the functional activity of the adrenal glands in the trained animals.

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